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**OSA-3156-67**

*10 AUG 1967*

**MEMORANDUM FOR: Director of Intelligence Liaison Support, IL/S&T**  
**ATTENTION:**  **ILLS/DD/S&T**  
**SUBJECT: Hovering Aircraft Proposal by Walk-In Inventor**

1. In accordance with your request of 27 July 1967, an engineering evaluation has been made of the proposed hovering aircraft.

2. Attached to this memorandum is a suggested reply to BDP.

  
**PAUL N. BACALIS**  
Brigadier General, USAF  
Director of Special Activities

**Attachment -  
As Noted**

GROUP 1  
Excluded from automatic  
downgrading and  
declassification

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25X1 ASD/R&D/OSA [redacted] (22 Aug 67)

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**ATT. TO  
OSA-3156-47**

**SUBJECT: Hovering Aircraft Proposal by Walk-In Inventor**

From a very general review of the small amount of information available for a proper engineering evaluation of the hovering aircraft, the following can be said:

A. The idea is not new. It was originally conceived when the autogiro and helicopters were first being developed. This type of lifting device is called a "Squirrel Cage Rotor". It's development was abandoned during the pioneering days of aviation due to it's mechanical complexities, weight, and aerodynamic inefficiency when compared to the helicopter. Devices similar to this one were built in the early days of flight but never "flew" and are categorized as "Aeronautical Oddities".

B. A helicopter, or even this hovering craft under discussion, depends on displacing downward a column of air at sufficient speed (mass flow) to be equal in force to the weight of the craft. The proposed hovercraft will have to displace the column of air through the lower blades (See Fig. 1), unlike the simple helicopter which does not have this interference. Other major disadvantages of the proposed machine are that the blades of the squirrel cage rotor will be constantly in the wake created by the

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preceding blade (creating turbulent flow and therefore decrease in efficiency), the blades will be generating lift at most 50% of the time, but drag all the time, and the centrifugal forces of a large rotating mass would be prohibitive from the structural strength/weight relationships.

C. The use of this vehicle to suspend a gondola with four cables for 1 or 1½ kilometers would be hard to accomplish without getting all entangled. The weight of the cables would be prohibitive not accounting for the winch mechanisms, etc., which would be needed.

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